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EXENTERATIO SIVE EVISCERATIO BULBI.

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This operation, as a substitute for Enucleatio Bulbi, was introduced by Prof. Alfred Graefe of Halle, and described by him in an address delivered before the Society of German Naturalists and Physicians in Magdeburg in September, 1884. This address, to be found in the voluminous proceedings of the Society, is not accessible to American ophthalmologists, and this fact is my excuse for again describing the operation and the grounds for its introduction, while a position for nearly a year as volunteer assistant in Prof. Graefe's clinic has enabled me to take notes of a number of cases which will, perhaps, be of some interest. Statistics show that enucleation is a by no means perfectly safe operation. Prof. Graefe has collected in Europe ten cases of meningitis following the operation, in seven of which death occurred, in only two of the cases was panophthalmitis present and in two more it was threatening. In America several cases have been published and it is highly

probable that both in America and Europe a number of cases have not appeared in print. In view of the fact that the operation of enucleation is never, except in case of malignant tumors, performed as a means of saving life, this considerable number of deaths renders it an earnest question whether there be another method of operating which shall be a sure preventative against sympathetic ophthalmia (so called) and at the same time bring the life of the patient into no danger. Prof. Graefe states the facts in his address as follows:

"In a certain number of cases, although the percentage is very small, the Enucleatio Bulbi is followed by a meningitis usually ending fatally. This is also true when we exclude from the operation all those eyes in which panophthalmitis is present. When a panophthalmitic eye is operated the immediate cause of the meningitis is to be sought in the operative procedure and it is still undecided whether, and in what manner, the panophtalmitis exerts an influence.

The meningitis is developed by propagation from a septic irritation of the wound along one or more of the ways of communication leading to the cranial cavity. The present methods of antisepsis are powerless to prevent this fatal accident. The cause of the irritation is probably infection of the wound. In a case of Prof. Leber's he was of the opinion that the inflammation followed the orbital veins into the cranium and in a case in my clinic which was microscopically examined the inflammation seemed to have traveled along the intravaginal lymph spaces of the optic nerve, the walls of which were swollen."

The Neurotomia opticociliaris was thought at the time of its introduction to fulfill the conditions previously stated, but time has shown that it is not to be relied upon as a preventive of a sympathetic ophthalmia, that the irritability of the ciliary region and sensibility of the cornea often returns within a longer or shorter lapse of time after the operation. and this procedure has now few advocates. It has long been asserted by pathologists that in cases of sympathetic ophthalmia the sclera plays an indifferent role, and the long series of experiments carried out by Prof. Deutschmann, of Gœttingen.

(see Graefe's Archives for 1884) speaks in support of the view that the infectious matter coming into the eye from without is propagated in the ciliary body, and thence makes its way either directly through the corpus vitreum or by way of the choroid to the optic nerve and thence to the other eye along this nerve. In case this view of the indifference of the sclera be true it can only be of advantage to leave the sclera in position and *avoid opening the capsule of Tenon.* The chief advantage of the exenteration over the enucleation are:

1. There is no wounding of the ways of communication between the orbit and cranium, specially of the lymph sheath of the optic nerve by means of which, as has been previously stated, the inflammation following the operative lesion is propagated.

2. The stump which is obtained is much superior to that of the enucleated eye. The artificial eye has a greater extent of motion.

Operation.—Chlorform is always administered, though Dr. Fodor has once performed the operation with use of cocaine and with very little pain. The simplest and most speedy method of operating is to cut through the sclera near the corneal edge with a scalpel, complete the removal of the cornea with a fine pair of shears, remove the contents of the bulbus with a small and sharp spoon, and draw the conjunctiva together with a tobacco-pouch suture.

As it is, however, often very important to obtain the contents of the eye-ball *in situ*, the operation is now always performed in Professor Graefe's clinic in accordance with a modification by Dr. Bunge, the first assistant. With a small and sharp scalpel or cataract knife, the operator cuts carefully through conjunctiva and sclera two or three m.m. distant from the corneo-scleral margin, until the dark pigment of the choroid comes into view, when a pair of fine scissors is introduced and the scleral cut completed at the same distance from the cornea, and without injuring the choroid. A thin stiff spoon with square instead of sharpened edge, and shaped to the form of the bulbus, is then introduced between sclera and choroid, pushed slowly back to the optic nerve, and the contents of

the bulbus in toto removed—spooned out. The conjunctiva is then brought together as before by means of a tobacco-pouch suture, or better, by three common sutures of catgut. The operation is performed under continuous inundation with a solution of corrosive sublimate 1 in 5,000. It is of course not always possible to remove in toto the contents of the bulbus, as there are often old scars and the choroid adheres to the sclera, in which case the remaining choroid is removed with the scissors or sharp spoon. In case the patient complains of severe pain upon coming out of the narcosis ice compresses are applied for an hour or two. In many cases there is no reaction at all and the patient can leave the hospital on the third or fourth day. In other cases the reaction is quite severe with swelling of the lids, chemosis and secretion.

In some cases the patient has remained under treatment for more than three weeks, but thus far a useful and painless stump has always resulted. The number of operations since January 1884, has reached 75. In the earlier operations iodoform was used and in the last cases inundation with corrosive sublimate solution, and this seems to have shortened the time required for healing. In the last eleven exenteration with corrosive sublimate the average number of days in the clinic has been seven and a fraction, while in twenty preceding cases treated with iodoform the average was more than eleven days. The objection that exenteration requires a longer stay in the clinic than enucleation has no weight if the exenteration can exclude the cases of death following the enucleation, and this question can only be determined by long experience. Painful stumps, through irritation of the ciliary nerves, occur occasionally following enucleation, and if they be sometimes found after exenteration this cannot condemn the operation; as yet, however, no instance of a painful stump has occurred; the ciliary nerves are, probably at least, as well protected from irritation when the sclera remains as when it is removed. As regards ease of operating neither method has an advantage over the other.

The exenteratio bulbi cannot entirely replace the enucleatio. In cases of malignant tumors glioma, sarcoma, etc., where the sclera is affected the enucleation, or the exenteratio orbitæ,

must be preferred to the evisceration. With this exception in favor of tumors the exenteration can always be performed, in cases of panophthalmitis, phthisis bulbi where sympathetic ophthalmia is to be feared, irido-choroiditis, staphyloma corneæ, injuries, painful and amaurotic eyes resulting from glaucoma, etc. It is also worthy of mention that Prof. Dr. Mulder in Gronigen, Holland, and Dr. Mules of Manchester, England, have, at a later date than, but independently of, Prof. Graefe, been led to recommend the operation of exenteratio bulbi.

Upon Dr. Mulder's recommendation Dr. Daubauton, in Groningen, has experimented with success upon rabbits, and Dr. Mules has performed the operation several times with success in his private practice.

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4. "Exenteratio Bulbi volgens Dr. Mulder," by J. D. Daubauton. P. Noordhoff. Groningen, 1884.

5. "Zur Pathogenese der Sympathischen Ophthalmie," by Prof. R. Deutschmann, Graefe's Archiv. f. Ophthalmologie, 30. Jahrgang, Abtheilung III, p. 77.

Case I. Boy, Arnolf Huyras, 5 years of age. R. normal, L. pseudoglioma. Suppuration in the corpus vitreum and beginning phthisis bulbi, following an injury with a match six months before, a piece of phosphorus having penetrated the eyeball. V.=0, ciliary region slightly sensitive, eviscerated August 4, 1884. Tobacco-pouch suture and iodoform.

Aug. 5. T. 37.8 C. Slight swelling and slight secretion, which quickly disappeared under the influence of warm cataplasms.

Aug. 14. Stump without irritation and with good mobility, artificial eye introduced. Two months later *status idem.*

Case II. Max Haase, 22 years old. R. Phthisis bulbi following conjunctivitis gonorrhoica. V.=0.

L. V. = Schweigger 5 at 5 metres, i. e., normal. Ophthalmoscopically normal. Complained of mouches volantes.

Jan. 3, 1885. R. eviscerated; continuous inundation with corrosive sublimate solution 1 in 5,000, and three loose sutures.

Jan. 4. No fever and no swelling; slight secretion. The ophthalmoscope shows no signs of retinal œdema in the left eye.

Jan. 7. Dismissed as healed.

CASE III. Louise Ludwig, 18 years old. R. leucoma adhærens, and for that reason iridectomy performed nine years ago. Fresh irritation present and V. = figures 2 inches high at 3 metres distance.

L. anterior synechiæ and old corneal scars. Cataracta secundaria nondum matura. Secondary glaucoma with deep excavation of the optic disk. Tension much increased; V. = motions of the hand perceived in the outer third of the field of vision. Irritation and severe pain.

Dec. 14, '84. Sclerotomy performed with abatement of pain and irritation.

Dec. 29. Right eye more irritated. Left eye irritated and painful. Tension greater than before the sclerotomy. L. eviscerated. Corrosive sublimate solution and ordinary sutures.

Dec. 30. No pain and no swelling; slight secretion (continuing three days). T. 38 C.

Dec. 31. T. 36.7.

Jan. 3. Stump ready for dismissal. Remains on account of the right eye, which improves, and is dismissed January 13 as healed. R. V. Schweigger 24 at 5 metres.

CASE IV. Carl Weigert, 36 years old. L. Injury through a gunning accident, charge of shot in the head. Eyelids greatly swollen. Chemosis; hyphæma; cornea perforated.

Dec. 29, '84. Eviscerated; corrosive sublimate solution. Ice compresses for two hours.

Dec. 30. T. 37.8 C. Great chemosis, considerable secretion and pain. Ice compresses.

Dec. 31. T. 36.6 C. No pain. The chemosis requires several times incision and warm cataplasms are applied twice a day for an hour at a time.

Jan. 9. Dismissed as healed.

Case V. Friedrich Tauche, 19 years of age. Injured two weeks before by a beet thrown against the left eye. Beginning phthisis bulbi, a broad scar in the sclera below the cornea. Pupil contracted and iris saturated with blood, V. = 0.

Jan. 20, '85. Eviscerated. It was impossible to remove the contents of the bulbus in toto. The choroid at the site of the scar in the sclera had to be removed from the sclera with shears and a sharp spoon. Corrosive sublimate solution. No fever and but slight swelling and secretion followed.

Jan. 27. Dismissed as healed.

Case VI. Julius Schreiber, aged 44. L. Phthisis bulbi following an injury in November 1884, on the 5th of January, he first noticed that the right eye was affected and presented himself January 13, with a broad posterior synechia in the lower part of the pupil, and a considerable diffuse cloudiness of the corpus vitreum; marked circum-corneal injection. Pupil contracted. V. = Schweigger 12 at 5 metres, i. e., not quite $\frac{1}{2}$. A well marked case of irido-choroiditis—of so called "sympathetic ophthalmia."

Jan. 14, '85. The left eye, which was amaurotic, exenterated under the same precautions as above. Corrosive sublimate solution and three sutures.

Jan. 15. No reaction and in three days the patient was ready for dismissal so far as the exenteration was concerned. At once upon his reception the patient entered upon a vigorous course of treatment in the attempt to save the eye affected with sympathetic ophthalmia. Atropine, heurteloup and inunction with ung. hydrarg. ciner. Upon the day after the evisceration there was a distinct improvement; less atropine was required to maintain the mydriasis, and the cloudiness in the vitreous had so far disappeared that the optic disk, upon the first examination with difficulty distinguishable, was seen in almost its normal distinctness. Vision also improved. The treatment was continued, and on February 3 V. = Schweigger 9 at $5\frac{1}{2}$ meters, a slight circumcorneal injection still present and very faint cloudiness of the vitreous. It is of course impossible to predict the outcome at present. It is not at all improbable that the lingering, sneaking irido-choroiditis will retain its hold and, perhaps after many

months, increase and lead to phthisis. The case is, however, interesting as being the first evisceration done on account of well marked sympathetic ophthalmia, and as indicating that the evisceration certainly does not injure the patient's chances and perhaps increases them.

GLAUCOMA PRODUCED BY ATROPIA.

BY D. D. COGGIN, M. D., SALEM MASS.

The danger of atropine to eyes predisposed to glaucoma has long been noticed.

But the notes of the following case from the clinical records of the writer are given not wholly in the belief that the very moderate action of the weak solution of the atropia sulphate that was employed was alone the cause of the acute glaucomatous attack that ensued.

It is quite possible that the state of mental excitement that is often noted on the part of patients while in the consulting room (and which was not absent in this one) was as important a factor as the use of the atropine in occasioning the trouble in this instance.

Oct. 18., 1884, Mrs. I., an American, age 68 years, complained of failingsight, which was first noticed one year before. No pain V.=Sn. LX. at 4. O. D. XXXVI. at 4. O. S. with + D. 1. 5= XVIII. at 4. O. S. No glass helped O. D. With her glasses she read Sn. 1. easily O. S. Pupils normal T=1 O. U. and incipient cataract. Fundus normal, O. S. and, as faintly seen through the diffuse opacity in the lens, O. D. also. Field of vision good. On instilling a drop of atropine solution (0. 03–30. 0.) the vision of O. D. rose to Sn. XVIII at 4. which gratified the patient so much that she was advised to use it whenever she should like to.

She insisted on being told as to the nature of her trouble but she left feeling quite hopeful.

On Oct. 21, her son said his mother had suffered much and the right eye had become blind. On examining the eye it was found to present all the symptoms of acute glaucoma. V. quantitative. No view of the fundus was got. It appeared that two days before, while at breakfast, severe pain appeared in the eye, with nausea, and loss of sight, and it lasted till the afternoon of the 20th. An iridectomy was declined. A two per cent solution of eserine sulphate was used and within half an hour the pupil was well contracted, though with the usual tearing pain that its use occasions.

Oct. 24, Eye quiet. Still red. T.+1. V. fingers at 0.75. Pupil irregularly contracted, with +1. 5.=Sn. 6. at 4. O.S. again since the first consultation. Eserine advised p. r. n.

ANÆSTHESIA OF THE RETINA.

DR. S. C. AYRES, CINCINNATI.

The following cases of retinal anesthesia are reported not because there is anything especially new in them but rather because they confirm a course of treatment which has been al. most without exception successful. Two of them may be attributed to uterine disturbances, but in the third this was probably not the case. The prompt recovery of vision in these cases and the infrequency of relapse would indicate that this phase of hysteria, if it may be correctly classed as such, is very amenable to treatment. The symptoms as they develop are certainly sufficient to excite alarm even in the stoutest heart. In the first case the amblyopia came on while she was sitting in church and suddenly everything around her was shrouded in darkness and gloom. So much was her vision impaired that she could not recognize objects around her. Such a sudden advancement of amblyopia is in my observation not common.

Case I. S. S., aet 26, gave the following unique history. She went to church one morning with, as she supposed, perfect vision in both eyes, at least up to date they had never given

her any trouble. After she had been seated a while she found that she could not see to read, and she soon found that she could see only the shadow of the minister. She could see persons sitting near her but could not recognize them, Ten days later I first saw her and found that she was only able to count figures at 6″. Her field of vision was contracted to about 10° by the perimetre. She could very imperfectly see large objects in a room but could not recognize her friends. She could not read 100 Sn. at any distance with the most favorable light. Fundamentally her eyes appeared sound and the pupils were active and responded to light. I gave her a hypodermic injection of strychnia and in fifteen minutes she could read Sn 100 at 6.″ and in thirty minutes could see the letters in Sn. 40. She was sitting in the office at this time and voluntarily said that her sight was returning and was as much surprised as she was delighted at the effect of the treatment. Next day January 18, her field of vision increase to 15° horizontal by 20° vertical. She was able to read Sn. 15 at 8″. Gave second injection and in half and hour she read Sn. $2\frac{1}{2}$ O. D. or 1 O. S. and her field of vision widened to 25° vertical by 20° horizontal.

January 19, V=$\frac{1}{X}$ U. O. and reads Sn. $3\frac{1}{2}$ O. S. and 5 O. D. before injection. There was a gradual improvement in vision up to February 1, when it became perfect in both eyes and the field of vision normal in extent. From the 1st to the 12th, of February her vision varied but little, being nearly perfect every day. On the latter day it fell to $\frac{1.5}{XXX}$, but in thirty minutes after the injection of strychnia it again came up to 1 in either eye. The same thing occurred on the 13th and 15th, the vision improving promptly after the use of the injection

On the 16th, however, she could count fingers at only 1′, with the O.D. and the field of vision was correspondingly contracted. O. S. V=$\frac{1.5}{XL}$.

On the 17th, 19th, 20th, and 21th, the r. e. remained about the same. The injection had but little effect on vision it remaining as on the 16th.

February, 22, 23 and 24. Counts fingers at 18″ O. D. O. S V= $\frac{1.5}{XL}$.

February 28, V= $\frac{1.5}{LXX}$O. D. and $\frac{1.5}{XXX}$O. S. After injection V= $\frac{1.5}{L}$ O. D. and $\frac{1.5}{XX}$ O. S.

With slight variations from day to day there was still an improvement and March 10, V= $\frac{15}{XL}$ O. D. and $\frac{15}{XXX}$ O. S. After injection V= $\frac{15}{XX}$ O. D. and $\frac{15}{XV}$. O. S.

March 15, V= $\frac{15}{XXX}$ O. U. Gave injection as usual but it seemed to have no effect.

March 16, V= $\frac{4}{c}$ O. U. and cannot read 20 Sn. with either eye and field of vision reduced to about 10°.

Here was a sudden fall in her acuity of vision in a single night without any assignable cause. There was no ophthalmoscopic change in either eye and her pupils were responsive to the influence of light.

From the time I lost sight of the patient, as I suppose, she became discouraged by the fluctuations in her acuity of vision.

There seemed to be nothing more than the hysterical element in the case, and it is more than likely that a continuance in the treatment would have given her relief. There seemed to be no menstrual disturbancein this case at first,although there was some uterine displacement, I think a prolapsus. She had suffered from headaches for three or four months previous to the first attack of blindness.

Case II.—Miss C., æt. 16, gave the following history in brief. About three weeks ago, she took cold during a menstrual period and menstruation was suddenly checked. This was followed by a feeling of languor and lassitude with pain in her back and limbs. She also noticed that she could not use her eyes comfortably. They soon grew tired and she could not read any length of time. Soon her sight began to fail for objects around her and she seemed to be in a fog. This grew more dense until finally she could scarcely see to go around alone. When first examined she could not see to count fingers at any distance with either eye. There was concentric contraction of the field of vision it being reduced to 12° horizontal by 10° vertical by the perimeter. The pupils responded to light and thefundus in each eye appeared perfectly sound and healthy.

I began the use of strychnia hypodermically and ordered grs. ij Vallett's mass three times a day. There was no improvement in central vision until after the fourth treatment, but the field of vision expanded to twice its diameter.

Feb. 1. Counts fingers at 3′. Gave injection strychnia.

P. M. Counts fingers at 5′.

Feb. 2 and 3. Vision same, field of vision slightly enlarged.

Feb. 4. V. = $\frac{1}{L \times X}$ O. U.

Feb. 5. V. = $\frac{1\,5}{X\,L}$ O. U.

Feb. 6. V. = $\frac{1\,5}{X\,V}$ O. U. and reads Sn. 1 at 10″. Injections discontinued.

In this case there was a gradual improvement first in the widening of the field of vision and second in acuity of vision. In ten days the recovery was complete and so far as heard from there has been no relapse. The sudden suppression of menstruation was here the active factor in causing the anæsthesia, for she could not be called hysterical, and always enjoyed excellent health.

Case III. Miss K., a healthy well-developed young lady of 16, suddenly lost the sight of the left eye. She could assign no sufficient cause for it, as her health had been excellent. There was concentric contraction of the field of vision and she was able to count fingers at a short distance, but exact vision was not noted. Her right eye was perfect for distance with no orthempic symptoms. Rest from her school studies was recommended, and she was ordered liberal doses of potassium bromide. In about two weeks she quite recovered full use of the eye with perfect vision.

This is one of the exceptional cases where only one eye is involved. The ophthalmoscope revealed no changes in the fundus. Her recovery was prompt and permanent.

In Vol. XI *Archives of Ophthalmology* Mooren in an exhaustive article on *Disturbances of Vision and Uterine Disease* mentions a case reported by Samelear where "a young woman of 21 had to work standing with bare feet at the time of her menses. The sudden menostasis caused a disagreeable sensation of pressure behind the eyes the same evening. Within a month she was completely blind. The ophthalmoscope showed nothing but a strong retinal reflex and a slight enlargement of the veins. In another week her sight returned." It was his opinion that the blinding was the result of a compression on the occipital lobes caused by venous stasis.

In the proceedings of the *Ophthalmological Society* for 1875 Dr. E. Williams reports three cases of *Retinal Anæsthesia.* The first was in the person of a young lady of 24 in vigorous health who had attacks of blindness coming on every day and lasting only a few minutes each time. There was concentric contraction of the field of vision in both eyes and marked diminution in the acuity of vision.

The recovery was slow, as she was under observation for two months. The blind spells became less frequent, and the field slowly enlarged, and her ability to fix her eyes on an object improved. She was treated with injections of *strychnia sulph.* hypodermically. There was no disturbance of menstruation or other cause to account for the anæsthesia.

In his second case the patient, a married woman of 38, was subject to chronic dysentery. She was the mother of eleven children at the age of 28, which is quite enough to shock the strongest constitution.

There was concentric contraction of the field of vision. At the same time there was intense photophobia, showing a *hyperesthesia* combined with an *anesthesia* of the retina. She had momentary attacks of blindness and could not trust herself to walk alone as her field of vision was so much contracted. She was at times very much reduced in strength by the dysentery, which seemed to be very unmanageable.

The strychnine injections were tried, but they caused nausea and headache and had to be discontinued. Quinia, iron and other tonics were resorted to, but all to no avail. When last heard from she was still suffering from attacks of dysentery, which, added to her mental depression, made the outlook very impromising.

The third case was that of a boy 10 years of age. He awoke one morning to find that he could not see to recognize the members of his family. He went to school that day, but could not see to study. Ten days later he came for treatment. He is a delicate nervous boy and has had pain through his temple for a year or two. Though of slender figure and anæmic look his general health has been good. He counts fingers with O. D. at 6′ and not at all with O. S. Field of vision very much contracted O.

U. Given strych. sulph. gr. $\frac{1}{30}$ hypodermically. At 4 P. M., six hours after injection, *field of vision was complete* but central vision had not improved.

The next day he read Sn. 70 at 4″; after third treatment read Sn. 20 at 3″. After sixth read No. 8 slowly; after ninth reads No. 5 slowly. Went home and twenty-four days later returned with V. = $\frac{1}{2}$ O. U. and ability to read Sn. 1. One month later vision had increased $\frac{3}{4}$ and he could read Sn. 1 rapidly. In this case as in others we first notice an improvement in the field of vision.

In the proceedings of the ophthalmological society, for 1882, Dr. Richard H. Derby of New York reports a very interesting case of retinal anæsthesia in a girl eight years of age recently convalescent from an attack of scarlet fever. Vision O. D. 0.6, O. S. 0.5. There was concentric contraction of the field of vision, it being reduced in either eye to about 10° by the perimeter. She was first ordered small doses of oxide of zinc, and ordered to wear coquilles.

Two months later her vision was reduced to 0.2 O. U. and fields limited, as at first. The optic discs appeared paler in their outer halves than before. Inhalations of the nitrite of amyl were now resorted to with excellent results. In ten days vision was and the fields were enlarged, but it was not until nine days later that the fields were considered normal. In this case the acuity of vision improved more rapidly than the field of vision enlarged. Under the strychnine treatment the fields widened first, and the acuity of vision returned later. In this case there were signs of partial atrophy of the optic nerve, but the recovery of vision was complete under the influence of the nitrite of amyl.

In the discussion which followed the reading of Dr. Derby's paper, Dr. Henry D. Noyes reported a remarkable case in a man 55 years of age. While talking he began to lose his sight, and in ten minutes was blind, and had to be led home. Complete abolition of sight lasted from 2 P. M. until 6 A. M. the next day, when it began to return. Twenty-four hours after he lost sight he was first examined, and had V. = $\frac{20}{C}$. He was put under the influence of nitrite of amyl, and in five minutes he had completely recovered. V. = $\frac{20}{XX}$.

A REPORT OF TWENTY-SEVEN CONSECUTITE CASES OF SENILE CATARACT OPERATED BY THE VON GRAEFE MODIFIED LINEAR EXTRACTION.[1]

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I presume there is no case of cataract extraction which does not present some points of interest; but as it would consume too much of your valuable space to attempt to give anything like a complete report of each one of the twenty-seven cases, I have prepared a table by which at a glance you will be able to determine the sex, age, date of operation, anæsthetic used, general condition of patient, the eye operated, duration since cataract became mature and results of operation. It will be observed that the general condition of most of the patients at the time of the operation was good so that the cases to a certain extent may be said to have been selected.

I wish to call your attention to a few of the cases which presented some points of unusual interest, after which I will give a short analysis of the cases; and in conclusion draw your attention to some general statements about the advisability of operating cases of senile cataract at the homes of the patients; and mention some of the difficulties I have met with in so doing. The statements with regard to length of time since cataracts were mature are approximate, as I was usually compelled to depend upon the statement of the patient, which is often very indefinite. I am, however, well satisfied that in my limited experience the right eye has become cataractous before the left in at least 70 or 80 per cent. of the cases; I have seen no statistics on this point.

The results of the operation were usually noted two or three months after the operation.

1. A partial report of these cases was read before the Northwestern Ohio Union Medical Society at the meeting at Akron, Ohio, February 3, 1884.

No.	Sex.	Age.	Date of Operation	Anæsthetic.	General condition	Eye Operated. *	Duration since Mature.	Results (Snellen).
			1883.					
1	M	72	Sept. 12.....	Ether.....	Good	R*.....	4 years.....	20/L
						L.....	1 year	
2	M	54	Sept. 14.....	None.....	Good	R*.....	1 year	20/XX
						L.....	Immature ..	
3	F	60	Sept. 15.....	None.....	Good	R*.....	2 years	20/XXX
						L.....	1 year	
4	F	87	Oct. 14.....	None.....	Good	R*.....	9 years	20/LXX
						L.....	5 years	
5	F	70	Oct. 18.....	Ether.....	Good	R*.....	3 years	20/LXX
						L.....	3 months....	
6	F	55-60	Nov. 18.....	Ether.....	Fair	R*.....	4 years ?.....	20/LXX
						L.....	4 years	
7	F	54	Dec. 15.....	Ether.....	Poor.....	R*.....	7 years	20/LXX ?
						L.....	4 years	
			1884.					
8	M	64	Jan. 15.....	Ether.....	Good	R.....	2 years	20/XL
						L*.....	10 years	
9	F	60	Mar. 10.....	Ether.....	Good	R*.....	2 months....	20/XX
						L.....	Immature...	
10	M	72	Mar. 10. ...	None.....	Good	R*.....	1 year	20/LXX
						L.....	1 year	
11	F	76	Mar. 12.....	None.....	Good	R.....	1 month	20/XL
						L*.....	1 year	
12	M	80	Mar. 14.....	Ether.....	Fair	R	6 months....	20/LXX
						L*.....	5 years	
13	M	50	Mar. 16.....	Ether.....	Good	R*.....	4 years	20/XX
						L.....	1 year	
14	M	40	Apr. 18.....	Ether.....	Good	R.....	Immature...	20/XX
						L*.....	?.....	
15	M	68	Apr. 21.....	Ether.....	Fair	R*.....	2 years	20/XXX
						L.....	Immature...	
16	M	63	Apr. 24.....	Chloroform	Good	R*.....	3 years	20/XX
						L.....	1 month	
17	M	82	May 17.....	None.....	Good	R.....	1 year	20/LXX
						L*.....	2 years	
18	M	78	May 18.....	None.....	Good	R*.....	3 years	20/XXX
						L.....	2 months....	
19	M	46	May 21.....	Ether.....	Good	R*.....	1 year	20/XXX
						L.....	.....	
20	M	77	June 5.....	None.....	Good.....	R*.....	4 years	20/XL
						L.....	4 years	
21	F	55	June 21.....	Ether.....	Good	R.....	3 months....	20/XX
						L*.....	2 years	
22	M	56	June 27.....	None.....	Good	R*.....	1 year	20/XX
						L.....	1 month.....	
23	F	59	Sept. 11.....	Ether.....	Good	R*.....	1 year	20/XXX
						L.....	Immature...	
24	M	48	Sept. 17.....	Ether.....	Good	R*.....	2 months....	20/XXX
						L.....	2 months....	
25	M	54	Nov. 16.....	Ether.....	Good	R	Immature...	20/L
						L*.....	2 months....	
26	F	66	Nov. 18.....	None.....	Good	R.....	11 years.....	20/XX
						L*.....	11 years.....	
27	F	73	Nov. 21.....	Hydrochlo	Good	R*.....	5 years	20/

CASE VI. Progressed nicely until the morning of the fourth day, when by mistake of the nurse the attending physician dropped carbolic acid into the eye, causing a very severe conjunctivitis; a very intense iritis followed, which was controlled by cold applications, leeching and atropia. Vision $\frac{20}{LXX}$. The pupil is immovable. Patient expresses himself qnite satisfied with the result and will not submit to needling, which would improve her vision somewhat.

CASE VII. The hygienic surroundings were very bad, and I operated the case under protest. The next day after the cataract extraction three children came down with diphtheria and were confined to the same room with the mother, who also had quite a severe attack of diphtheria commencing about two weeks after the cataract extraction. She also suffered from a severe iritis, and was confined to her bed for three months. I saw the case at the end of that time and fitted spectacles. She was able to read $\frac{20}{LXX}$ easily. Since that time she has been gradually losing her vision and at present, December 15, 1884, can only see about $\frac{20}{CC}$, the result of a secondary cataract forming, which can be benfited by needling.

Since writing the above I have received a letter stating patient's clothes accidentally caught fire and before it was extinguished she was so severely burned that she died in a few hours.

CASE XI. The vitreous was fluid. When I touched the capsule with the cystotome the lens performed a somersault back into the vitreous. I carefully passed a scoop behind the lens and removed it in its capsule, with very little escape of vitreous. Result most satisfactory.

CASE XII. There were two small posterior synechiæ in the left eye, resulting from an old iritis. I included the synechiæ in my iridectomy and delivered the lens without accident. There are very extensive synechiæ in the right eye.

CASE XIX. Had a preliminary iridectomy, performed by a New York oculist two or three years previous. A purulent iridocyclitis had developed the next day after the operation. Extraction perfectly satisfactory.

In connection with this case I wish to state that during the

past year I have met one other case in which a preliminary iridectomy had been performed by Dr. Mittendorf, and the eye had been lost in the same way. I expect to operate on the other eye of this patient soon.

These two cases have caused me to look upon "preliminary iridectomies," so fashionable at present, with some suspicion. I have not been able to see the propriety of subjecting a patient to the risk and inconvenience of two operations; when in selected cases, with experienced operators, and when the operation is completed in one sitting, the loss is not more than from one to four per cent., I doubt if simple iridectomies could present a better showing. [?Editor] In cases with increased tension and where the general condition of the eye would be improved I have made it a rule to perform a preliminary iridectomy. Also in cases of immature cataract in which patients have insisted on having "something done," and for fear of losing the case I have performed preliminary iridectomies, with no ill results, and at the same time kept the confidence of my patient and increased my fee. [!Editor] I rather suspect this is the secret of the popularity of this operation. It satisfies the patient and keeps the case until such time as the lens is in condition to be removed.

Case XXVII. Progressed satisfactorily until the beginning of the third week. Patient was left alone for a short time during the afternoon; when the family returned to the room she was found unconscious on the floor and remained so during the night. She regained consciousness the next morning, but had complete hemiplegia of the left side. This gradually improved and almost entirely disappeared in five or six days. The case presented no other unusual symptoms and rapidly progressed to complete recovery. Vision $\frac{20}{c}$. Pupillary space large, clear and key-hole shaped. Iris active. Retina and vitreous healthy. Patient says she never saw acutely with the eye operated on. There was a corneal ulcer with considerable purulent secretion from other eye. There was also a large pterygium of either eye and a slightly divergent strabismus.

An analysis of the above twenty-seven cases shows that sixteen were males and eleven females. Ether was administered to fifteen. chloroform to one; hydrochlorate of cocaine was used

in one case, and nine cases were operated upon with no anæsthetic. The right eye was operated on in nineteen cases and the left in eight.

When corrected with lenses

8	of the above cases could read (Snellen)	-	-	-	$\frac{20}{XX}$
6	" " " "	-	-	-	$\frac{20}{XXX}$
3	" " " "	-	-	-	$\frac{20}{XL}$
2	" " " "	-	-	-	$\frac{20}{L}$
7	" " " "		-	-	$\frac{20}{LXX}$
1	" " " "	-	-	-	$\frac{20}{C}$

There was no corneal complication in any of these cases and only two cases of iritis.

The twenty-seven extractions may be arranged as follows, grouped according to age:

Age.	No.	Visual Results.					
		$\frac{20}{XX}$	$\frac{20}{XXX}$	$\frac{20}{XL}$	$\frac{20}{L}$	$\frac{20}{LXX}$	$\frac{20}{C}$
40-50	3	1	2				
50-60	8	4	1		1	2	
60-70	6	3	2	1			
70-80	6		1	2	1	2	
80-90	4					3	1
	27	8	6	3	2	7	1

It will be seen the youngest was forty, and the oldest eighty-seven and the average age about sixty-four.

For reasons not necessary here to state almost all of these cases were operated at the homes of the patients and left under the care of the family physician. The uniform good results will I think justify me in saying that it is not necessary for these old patients to leave the comforts of home and the cheerful surroundings of friends. The long journey, the change of diet and surroundings and all this change means in eating, drinking, sleeping, exercise, associations, etc., cannot but have a depressing influence upon our old patients and must often outweigh

the benefits arising from better nursing, improved hygienic surroundings, etc.

I do not wish to be understood that I would prefer to operate these cases at their homes and leave them under the care of the family physician, but I wish to say that I think it is perfectly safe to do so, and I wish to call the attention of the profession to those old people who have been blind for years, who are old and feeble and not able to take a long journey, who are practically dead and who only exist in the minds of their most intimate friends and acquaintances who have to supply their daily wants. There are such cases in almost every community.

I was very forcibly impressed by a remark made by Dr. Lawson one day at the Moorfields Ophthalmic Hospital, London, Eng. An old man was operated on by Dr. Lawson one morning. On the evening of the same day the old gentleman took offense at one of the nurses, because of some restriction, and by some means escaped from the hospital, got on top of an omnibus, rode four or five miles, got down and entered the Middlesex Hospital; and would give no account of himself. He was found at the end of two or three weeks at the Middlesex Hospital, by Dr. Lawson, and made an excellent recovery. After relating this case at length, Dr. Lawson remarked "I am becoming impressed more and more every day with the fact that the success of cataract extractions depends upon the operation itself and not on the after treatment."

It is the practice of Dr. Lawson, as well as of most of the English surgeons after cataract operations, to not disturb the dressing, if there is no pain or other indication of inflammatory trouble, until the end of the third or fourth day. Most German oculists open and examine and instill atropia every day. Prof. Jaeger, of Vienna, with whom I spent considerable time, always removed the dressings and examined the eye very carefully twice daily. It gave me an excellent opportunity to watch the progress of the cases from day to day, but I am certain it was not to the best interests of the patients. I have no statistics on this point but from my observation, which extended over several hundred cataract extractions both in England and Germany, I am certain iritis is more frequent with the latter.

One practical disadvantage I have met in operating at the homes of the patients is the need of trained assistants. I have been very much surprised to find how few physicians know how to administer ether. The physician is afraid of it and soon communicates his fear to his patient, and the one reacts upon the other so that the results are very prejudicial. I have been compelled time and again to take the anæsthetic from a good physician and administer it myself. I have found comparatively few physicians who can fix an eye without pushing the fixation forceps against it. I have no doubt our increased clinical advantages, together with post-graduate teaching, will do much to remove these difficulties.

TRANSLATION.

The following translation seems to be of some interest in connection with Dr. Fiske's paper in the present number.

It is taken from *Zehender's Klinische Monatsblætter f. Augenheilkunde*, Jan'y, page 49 and sequ., and written by Prof. Graefe, in Halle, as an answer to a criticism by Prof. Manz, in Freiburg, i. B., on a previous paper on exenteratio bulbi by the same author. We have omitted all personal matters.

* * * Concerning the autopsy in two cases of meningitis after enucleatio bulbi, he says that longitudinal sections made of the optic nerve showed that no inflammatory process could be traced in the parenchyma of this nerve ascending from the wound, the enucleation had caused; but the pia mater was enormously infiltrated with cells, especially in the direction toward the canalis opticus. On this fact I based my opinion that the meningitis was due to the propagation of the inflammatory process by way of one of the channels leading from the wound upwards, *i. e.*, by way of the intra-vaginal lymph-space. * * *

* * * I am satisfied that there is no difference in the operative technical difficulties of the exenteratio bulbi, as I have described it on the one, and the enucleation of the eye from Tenon's capsule on the other hand. Yet, the former procedure

is decidedly the superior one with regard to simplicity and to the final result, since it affords of much more favorable conditions for the wearing of an artificial eye, than does the enucleation. * * *

* * * We have a priori a right, according to the present state of our knowledge, to see in the removal of the intra-scleral parts, which give the soil for the development of progagating inflammation, as certain a preventive means as we do in the enucleation. * * *

* * * I have stated that the process of healing after our operation is a varying one; that the healing is often by first intention and that in other cases a considerable reaction (swelling of lids, chemosis, secretion) take place. In the former case the patients can be discharged on the third to sixth day; in the latter case, the reconvalescence usually lasts until the end of the second week, but this is solely due to the fact that the chemosis which prolapses through the palpebral fissure must yet be locally treated after all other symptoms of irritation have disappeared. * * *

* * * The healing after an enucleation, too, is not always perfectly smooth, and sometimes this operation is followed by symptoms of irritation similar to those after exenteration. Moreover, this operation is made in a number of affections, which, without being interfered with by an operation, would require a prolonged period for their cure, as in recent cases of hopeless injuries, in the beginning or at the acme of a panophthalmitis, etc. If such eyes are enucleated, in spite of all unfavorable considerations, the reaction, as a rule, is more severe and the healing more tardy than is the case after exenteration. But, granted that the healing after the latter operation often actually takes a few days more than after the former one, how can this be thrown into the scale against the gains expected from the exenteration, viz., a better stump and the safeguard against meningitis! * * *

* * * I took occasion to report ten cases of severe meningitis due to enucleation, which in the majority of these cases actually caused death. This statement was based on what I had learned from the literature of about twenty years, as fa as

it came to my knowledge. But it is only too probable that the actual number of lives lost after enucleation is considerably larger. One of the few members of the ophthalmological section at the meeting of *German Naturalists*, Dr. Howe, reported a case in which death ensued after an enucleation made by him on account of phthisis dolorosa. * * *

* * * As Jacobson states, that, since he enucleated under the carbolic spray, he has had no more occasion to see meningitic symptoms after this operation, we may well conclude that he has formerly had occasion to see them. I do not doubt that many a one has been prevented from publishing such cases, by being afraid of bringing the observations of such unfortunate results into general knowledge. Such action is unjustifiable, though it may well be understood. I myself have during my professional career performed enucleation of the eye approximately 600 times and seen, as already stated, death from meningitis following it in two, *i. e.*, one-third per cent, of these cases. The consideration of this subject becomes extremely painful when we think that, with the exception of the formation of tumors, this operation is never done as serving an *indicatio vitalis*, but solely to remove different affections which we cannot otherwise get rid of, or to prevent an affection of the fellow-eye, which is not even sure to make its appearance, or even merely for a cosmetic effect. It seems to me, therefore, that there are reasons enough why we should look about us for a substitute for the enucleation, although it is considered to be a classical operation.

Halle, Dec. 1884. ALFRED GRAEFE.

In the December number of the *Centralblatt f. Praktische Augenheilkunde*, Dr. Elizabeth Sargent, of San Francisco, publishes the results of the microscopical examination of six glaucomatous (three primary and three secondary) eyes, made at the Pathological Institute of the University of Zuerich.

The following are some of the points of interest:

* * * The optic nerve was cut into transverse sections. I made fifty-seven sections, one thousandth of a millm. in thickness,

of the part of the optic nerve lying close to the lamina cribrosa. In all of the specimens the whole transverse section shows an infiltration with round-cells. In some of them there is a large aggregation around the *vena centralis* and circumscribed masses in the periphery near the sheath of the nerve. The pia mater sheath is also infiltrated here and there. The venous vessels of the dura mater sheath are surrounded by innumerable round-cells. Near the eye-ball the optic nerve begings to become atrophic. In the last fifteen sections the excavation appears as a hole, which becomes larger and larger until it represents two-thirds of the atrophied optic nerve; the *vasa centralia* are pushed to one side of it.

TABLE OF PATHOLOGICAL CHANGES IN THESE EYES, WHICH WERE ALL IN A STATE OF ABSOLUTE GLAUCOMA.

	Primary.	Secondary.
Marginal Pannus of the Cornea	3	3
More Central Pannus	1	1
Cell-Infiltration of Substantia Propria	1	0
Healed Ulcer	2	0
Schlemm's Canal — Open	2	1
Schlemm's Canal — P	1	1
Schlemm's Canal — T	0	1
Episcleral Veins Surrounded by Cells — Anterior	3	2
Episcleral Veins Surrounded by Cells — Posterior	0	1
Anterior Chamber — Shallow	2	2
Anterior Chamber — Obliterated	1	1
Inflammatory Deposits on Descemet's Membrane	1	1
Adhesions of Periphery of Iris to Cornea	3	3
Some Swelling of Iris-tissue	1	1
Atrophy of Iris	2	2
Synechiæ — Anterior	0	1
Synechiæ — Posterior	0	1
Hypermetropic Ciliary Muscle	2	0
Atrophy of the Pigment of the Ciliary Processes	3	3
Hyperæmia of the Ciliary Processes	1	2
Cyclitic Exudation	0	1
Lens — Cataractous	2	3
Lens — Equatorially Enlarged	1	0
Lens — Dislocated into Anterior Chamber	0	1
Zonula of Zinn — Torn by Dislocation of Lens	0	2
Zonula of Zinn — Infiltrated with Cells	0	2
Vitreous Body — Bloody Extravasations	2	0
Vitreous Body — Infiltrated with Round Cells	1	2
Vitreous Body — Shrunken	0	1

		Primary.	Secondary.
Choroid	Normal	2	0
	Some Formation of Thrombi	0	1
	Inflamed in Front of Equator	1	0
	Generally Changed	0	2
Retina	Well Preserved	2	0
	Atrophied	1	0
	Cystic Degeneration near Ora serrata	3	0
	Highly Atrophied and Degenerated	0	3
	Detached	1	2
Optic Nerve	Cupped	3	3
	Excavation Filled with New Formed Connective Tissue	1	0
	Showing Cell-infiltration and Atrophy	3	2
	Simple Atrophy	0	1
	Perineuritis	2	1

In summing up the results of these examinations we find the cardinal points viz., excavation of the optic nerve and obliteration of the iris-angle in *all* cases, whether they be of primary or secondary glaucoma. The infiltration with cells in the anterior parts of the sclerotic and the participation of the cornea in the process, especially in the area of the palpebral fissure, are equally constant.

There is an important difference between the conditions of the retina in the primary and in the secondary cases, at such a late stage of the disease, not to mention the changes in the choroid. In the primary cases the retina is well preserved, or only shows premature senile alterations, in the secondary cases it is degenerated to the highest degree.

The infiltration of the optic nerve behind the lamina cribrosa (found in the majority of the cases), of the tissue around the *vasa centralis* and even of the intra-vaginal spaces, is also of great importance.

* * * What has been found at this late stage of the disease, can, however, only reservedly be counted with, and we can only say that it seems to be of great moment for the explanation of a large number of cases of glaucoma, to examine carefully into the conditions of the sclerotic, especially its anterior portions, and of the blood-vessels of the retina and optic nerve.

EDITORIAL NOTICE.

We are informed that some of the members of the Moorefields Ophthalmic Hospital staff in London have arranged to give short courses of instruction in Ophthalmoscopy, Refraction and External Diseases of the Eye. The next series of these courses will begin early in May, and there will probably be another early in October.